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EXAMINER
SHOSHO, CALLIE E

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1714	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/727,324	Applicant(s) FREEMAN ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- *The MAILING DATE of this communication appears on the cover sheet with the corresp ndence address* --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3-4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2 and 4-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 2, 5, and 10 each recite that the polymer has a "particle size distribution such that essentially all the particles have a diameter in the range from 130 to 450 nm". The scope of the claim is confusing because it is not clear what is meant by "essentially all". Does this mean that not all the particles must have the claimed diameter? If so, what percentage of particles must have the claimed diameter to be considered "essentially" all of the particles – 99.9%, 95%, 90%, etc? Given that the phrase "essentially all" is not defined by the claim and the specification does not provide a standard for ascertaining the requisite degree, one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

(b) Claim 4 recites an improper Markush group. It is suggested that in line 4, after "vinylsulfonate", "and" is deleted and replaced with a comma, and in line 5, "or" is changed to "and".

Similar problems arise in claim 5 and claim 8 where it is also suggested that in line 9 of each claim, after "vinylsulfonate", "and" is deleted and replaced with a comma, and "or" is changed to "and".

There is also another recitation of an improper Markush group in claim 8. It is suggested that "and" is inserted after "methacrylamides," and before "substituted" in line 5.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 455379.

EP 455379 discloses a latex polymer comprising 3-7.5% methacrylic acid wherein the latex has a glass transition temperature (Tg) of -20^0 to 5^0 C (page 2, lines 50-54 and page 3, lines 23-28). Particular attention is drawn to example 1 which discloses a latex polymer possessing Tg of -14^0 C and average particle size of 316 nm. While there is no explicit disclosure that the polymer is a binder, given that the polymer is used to increase adhesion between substrate and coating (page 2, lines 46-48), it is clear that the polymer of EP 455379 does function as a binder, i.e. binds coating to substrate.

In light of the above, it is clear that EP 455379 anticipates the present claims.

5. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(a) as being anticipated by EP 960919.

EP 960919 discloses a binder comprising up to 5% acid component such as (meth)acrylic acid wherein the binder has a glass transition temperature (Tg) of -25^0 to 20^0 C (page 3, lines 14-30, page 3, line 58-page 4, line 4, and page 8, line 1). Particular attention is drawn to page 5, lines 3-10 wherein there is disclosed Latex Polymer 1 which has Tg of -6^0 C and average particle size of 332 nm and where it is calculated that the polymer is obtained from approximately 1.6% methacrylic acid.

In light of the above, it is clear that EP 960919 anticipates the present claims.

6. Claims 1, 3-4, and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 867484.

EP 867484 disclose an ink jet ink comprising a polymer obtained from (meth)acrylates and 1-10% acid component such as (meth)acrylic acid, itaconic acid, and maleic acid and wherein the polymer has average particle diameter of 5-400 nm and glass transition temperature (Tg) of less than 30^0 C. It is further disclosed that the polymer is in the form of an emulsion. Additionally, since the polymer is used to strongly fix the colorant present in the ink to substrate, it is clear that the polymer functions as a binder (page 3, lines 32-33 and 58, page 4, lines 1-2, 22-23, and 49-57, and page 5, lines 7-9 and 41-43).

In light of the above, it is clear that EP 867484 anticipates the present claims.

7. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 590604.

EP 590604 disclose a copolymer comprising (meth)acrylates and 1-15% acid component such as (meth)acrylic acid and itaconic acid wherein the copolymer has average particle size of 100-1000 nm and glass transition temperature of 10^0-50^0 C. It is further disclosed that at least 95% of the copolymer particles have average particle size of 100-500 nm. Additionally, the copolymer is in the form of an emulsion (page 2, lines 40-45, page 3, lines 5-10 and 19-21, and page 4, lines 22-28 and 57-58).

While there is no disclosure that the copolymer is a binder, ink binder, or useful as a binder in ink jet inks as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that none of the preambles in the present claims state any distinct definition of any of the claimed invention's limitations and further that the purpose, i.e. binder or ink binder, or intended use, i.e. useful as a binder in inkjet inks, recited in the present claims does not result in a structural difference between the presently claimed invention and the

prior art EP 590604 and further that the prior art structure which is a polymer identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

In light of the above, it is clear that EP 590604 anticipates the present claims.

8. Claims 1, 3-4, 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Horii et al. (U.S. 5,622,778).

Horii et al. disclose a binder obtained form (meth)acrylates and acid component such as (meth)acrylic acid, crotonic acid, and maleic acid wherein the binder has glass transition temperature of -70^0 to 20^0 C and average particle size of 200-600 nm. Further, it is disclosed that the binder is in the form of an emulsion (col.4, lines 55-57, col.4, line 67-col.5, line 14, col.5, lines 52-53, and col.16, lines 14-16). Particular attention is drawn to col.13, line 39-col.14, line 5 which discloses a polymer which is obtained from 2% methacrylic acid and has Tg of -20^0 C and average particle size of 350 nm.

While there is no disclosure that the binder is an ink binder as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does

the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. ink binder, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art Horii et al. and further that the prior art structure which is a polymer identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

In light of the above, it is clear that Horii et al. anticipates the present claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 867484 or Horii et al. (U.S. 5,622,778) either of which in view of Farwaha et al. (U.S. 5,959,024).

The disclosures with respect to EP 867484 and Horii et al. in paragraphs 6 and 8, respectively, are incorporated here by reference.

The difference between either EP 867484 or Horii et al. and the present claimed invention is the requirement in the claims of particle size distribution of the polymer.

Farwaha et al., which is drawn to the use of acrylic latex, disclose that a polymer possessing a narrow particle size distribution results in a coating with much better gloss and further that the smaller the average particle size, i.e. less than 500 nm, the more water resistant the polymer and that such small particle size is achieved by using a polymer with a narrow particle size distribution (col.2, lines 36-40 and col.7, lines 58-67).

In light of the motivation for using an acrylic polymer with narrow particle size distribution disclosed by Farwaha et al. as described above, it therefore would have been obvious

to one of ordinary skill in the art to use polymer with narrow particle size distribution including that presently claimed, in either EP 867484 or Horii et al. in order to produce a composition with improved gloss and water resistance, and thereby arrive at the claimed invention.

12. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 867484 or Horii et al. (U.S. 5,622,778) either of which in view of Farwaha et al. (U.S. 5,959,024).

EP 867484 disclose an ink jet ink comprising a polymer obtained from (meth)acrylates and 1-10% acid component such as (meth)acrylic acid and maleic acid and wherein the polymer has average particle diameter of 5-400 nm and glass transition temperature (Tg) of less than 30^0 C. It is further disclosed that the polymer is in the form of an emulsion. Additionally, since the polymer is used to strongly fix the colorant present in the ink to substrate, it is clear that the polymer functions as a binder (page 3, lines 32-33 and 58, page 4, lines 1-2, 22-23, and 49-57, and page 5, lines 7-9 and 41-43).

Alternatively, Horii et al. disclose a binder obtained form (meth)acrylates and acid component such as (meth)acrylic acid and maleic acid wherein the binder has glass transition temperature of -70^0 to 20^0 C and average particle size of 200-600 nm. Further, it is disclosed that the binder is in the form of an emulsion (col.4, lines 55-57, col.4, line 67-col.5, line 14, col.5, lines 52-53, and col.16, lines 14-16). Particular attention is drawn to col.13, line 39-col.14, line 5 which discloses a polymer which is obtained from 2% methacrylic acid and has Tg of -20^0 C and average particle size of 350 nm.

The difference between either EP 867484 or Horii et al. and the present claimed invention is the requirement in the claims of particle size distribution of the polymer.

Farwaha et al., which is drawn to the use of acrylic latex, disclose that a polymer possessing a narrow particle size distribution results in a coating with much better gloss and further that the smaller the average particle size, the more water resistant the polymer and that such small particle size is achieved by using a polymer with a narrow particle size distribution (col.2, lines 36-40 and col.7, lines 58-67).

In light of the motivation for using an acrylic polymer with narrow particle size distribution disclosed by Farwaha et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with narrow particle size distribution including that presently claimed, in either EP 867484 or Horii et al. in order to produce a composition with improved gloss and water resistance, and thereby arrive at the claimed invention.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mallya (U.S. 4,780,503) discloses carboxylated latex which has a bimodal particle size distribution wherein 35-65% of the latex has particle size of 170-300 nm and 35-65% of the latex has particle size of 30-100 nm.

Dames et al. (U.S. 5,990,221) disclose an aqueous polymer dispersion with bimodal particle size distribution, however, there is no explicit disclosure of the glass transition temperature (Tg) and the Tg calculated from the examples all fall outside the scope of the present claims.

Geelhaar et al. (U.S. 4,267,091) disclose an acrylic binder which has glass transition temperature of 0^0–50^0 C, however, there is no disclosure of the binder particle size.

WO 01/44386 disclose an ink jet ink comprising a binder which is obtained from 1-10% acid component wherein the binder has glass transition temperature of -12^0 to 25^0 C and average particle size of 250-375 nm, however, given the publication date of the reference and the effective filing date of the present application, this reference does not qualify as prior art under any subsection of 35 USC 102.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Callie E. Shosho
Examiner
Art Unit 1714

Callie Shosho
January 24, 2002